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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/757,195 | 01/14/2004 | James T. Aslanis | TI-27730A.1B | 3583 |

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| EXAMINER | |
| FOTAKIS, ARISTOCRATIS | |

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| ART UNIT | PAPER NUMBER |
| 2611 | |

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| NOTIFICATION DATE | DELIVERY MODE |
| 11/01/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
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Office Action Summary

Application No.

10/757,195

Applicant(s)

ASLANIS ET AL.

Examiner

Aristocratis Fotakis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/04/2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18 - 68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 - 62 is/are allowed.
- 6) ☒ Claim(s) 63 - 68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 63 - 68 are objected to because of the following informalities: In claim 63, lines 7 – 9 are objected. The claim recites that the correlation is weighted. However as shown in the Figures and the specification, the synchronizing pattern is weighted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 63 – 68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 63 recites the limitation "the weighted complex amplitudes" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 63 recites the limitation "the pseudorandom sequence" in line 17. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Jasper et al (US 5,343,499) in view of Cioffii et al. ("Modification to DMT Synchronization Pattern Insertion", Submission T1E1.4/93-089 to the T1E1.4 Working Group of Committee T1, listed in the IDS filed 1/9/04, "Cioffi" hereinafter).

Re claim 63, Jasper discloses of a method of attaining frame synchronization in a multicarrier modulation transmission system (Col 10, Line 10) in which a synchronizing frame containing at least a synchronizing pattern is transmitted in a multicarrier modulated signal (Abstract, Col 2, Lines 50 – 67 to Col 3, Lines 1 – 36), said method comprising: receiving values of the synchronizing frame (input to 660, Fig.5), the received values corresponding to complex amplitudes associated with respective ones of a plurality of tones of the multicarrier modulated signal (Col 8, Lines 24 – 57); correlating (#660, Fig.5, Col 8, Lines 50 – 56) the complex amplitudes with corresponding stored values of the synchronizing pattern (synchronization waveform, *where a pseudorandom sequence used in a multicarrier system is well known in the art for its randomness*) weighted by a weighting coefficient for each of the plurality of tones (Col 10, Lines 7 – 43, Figs.4, 11, 11a and 12), to produce a comparison result; and comparing the comparison result with at least one threshold value to provide an indication of existence or loss of frame synchronization (#680, Fig.5) (Col 7, Lines 9 – 54).

However, Jasper do not disclose the synchronizing pattern corresponding to a set of j values chosen from a sequence of N values, and the equations that determine the N values.

Cioffi teaches the specified equations that define the synchronization pattern above in the T1E1.4/93-089 document (see page 2, section 2.1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the synchronization pattern defined by equations taught by the T1E1.4/93-089 document so as to conform to the standard.

Re claim 64, Jasper discloses of the frame synchronizer determining an adjustment amount (#692, Fig.4 and 5) to restore frame synchronization when the result of the comparing step (#680, Fig.5) indicates that the frame synchronization has been lost (sync presented indication, Fig.5); and adjusting a frame boundary in accordance with the adjustment amount to restore frame synchronization (AFC estimation, Col 9, Lines 23 – 67 to Col 10, Lines 1 – 40 and Col 6, Lines 24 – 45, Fig.4).

Re claim 65, Jasper discloses of a weighting multiplier is disclosed for each corresponds to whether its associated tone is to contribute to the comparison result (Col 10, Lines 7 - 27).

Re claims 66 and 67, Jasper discloses of the weighting coefficient applied to a tone

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that is decided to contribute to the comparison result according to the result of the comparator (#680, Fig.5, Col 7, Lines 9 - 49).

Re claim 68, Jasper discloses of each weighting coefficient corresponds to a signal-to-noise ratio of its associated tone. It would be inherent for the weighting coefficient to correspond to a signal-to-noise ratio in order to obtain a clean constellation for Fig.7.

Allowable Subject Matter

Claims 18 – 62 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 7 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AF


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER